

Composition of Debris disks

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Studying the dust properties in debris disks is different from studying young disks. The disks around young stars are optically thick, and using optical or IR observations generally limits the observations to dust in the surface layer of the disk. Debris disks, on the other hand, are optically thin and allow the study of all the dust at different wavelengths from optical to mm. However, since these disks are faint and the average grain sizes are large, the amount of information about the composition of dust in debris disks is so far limited. When we ask about the composition of debris disks, we are interested in many properties, for example size, composition, lattice structure, presence of ice mantles, and porousness. I will review different observational methods which attempt to derive these parameters related to the dust properties. In particular I will cover infrared spectroscopy, optical and near-IR polarimetry, imaging and mm/submm observations. I will also discuss a new method to derive mineralogical information even for crystalline grains which are outside the Rayleigh limit.

